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NON-NUCLEAR POWER

STATUS OF RESEARCH ON MHD POWER STATION

Construction Progress

Moscow IZVESTIYA in Russian 9 Jan 86 p 1

[Article by L. Viktorov: "A Power Plant Like None Before"]

[Text] IZVESTIYA has already reported that construction has begun of the first commercial generator unit of an MHD power plant. The use of magnetohydrodynamic (MHD) generators makes it possible to substantially increase the efficiency factor of power plants and to utilize fuel more rationally.

The world's first commercial generator unit of an MHD power plant is under construction in Novomichurinsk at the Ryazanskaya GRES. We have discussed the progress of construction with D. Burenkov, the director of the association that is building the MHD power plant.

"In the year now starting we will put into service a high-priority facility -- the MHD generator assembly shop. It is here that this unique superconducting magnetic for the needs of the national economy will first see the light. Erection of the framework for this shop is proceeding at full steam, and in mid-year we will start to install the equipment.

"Everything here will be unusual. Just imagine that we will have to assemble and install here an electric coil about 25 m in diameter and weighing hundreds of tons. The rated capacity of the future generator unit will be 580,000 kW, 270,000 kW of which will come from the MHD generator, and 310,000 from a classic steam power plant."

"In this unique construction project how have roles been assigned among the scientist-designers of MHD generators, the future operators, and those putting up the plant and installing equipment in it?"

"By decision of the USSR Academy of Sciences and the USSR Minenergo [Ministry of Power and Electrification] an Interdepartmental Scientific and Technical Center was set up to develop this wholly new approach to electric power. Academician A. Sheyndlin, director of the Institute of High Temperatures of the USSR AN [Academy of Sciences] was named general designer of the commercial MHD power unit of the Ryazanskaya GRES. He and his assistants are also coordinating the work of a great many organizations involved in this construction project. To

make the complexity of this task clearer, let me say that more than 40 ministries and departments are taking part in it."

"No doubt it is difficult for you to match scientific and construction problems?"

"The construction job is demanding, but long anticipated. I am now employed by Minenergo, but for several years previously I worked at the Institute of High Temperatures and took part in the development of MHD generators."

"The first construction workers and operators of the MHD power plant will be living in Novomichurinsk...?"

"Why 'will be'? They are living there now. Last year we turned over the first four buildings for them and this year we will turn over six more and start construction of the school. The future population of Novomichurinsk will grow to 20,000. For them we will build 200,000 square meters of living space. All this helps to attract specialists to the project."

"The construction of the commercial MHD generator unit near Ryazan -- is this evidence that series utilization of this type of unit can begin in the power industry? What are the plans to disseminate the experience of the project at Novomichurinsk?"

"It has been proposed to set up a scientific center there. An engineering laboratory building will be built here. And experience is really needed here, since development has already begun of the technical and economic grounds for building an MHD power-plant unit of twice the capacity, and operating on coal rather than on gas, as Novomichurinsk does. You will agree that these are large-scale plans."

Operation of MHD Power Plant Described

Yerevan KOMMUNIST in Russian 28 Dec 85 p 4

[Article: "Putting Plasma to Work"]

[Text] The MHD generator is a new concept from the dictionary of NTR [scientific and technical work], a new way of obtaining electricity, and a promising avenue of science. TASS correspondents discuss scientific studies in this area.

2700 DEGREES CELSIUS

Utilizing an MHD generator in a thermal power plant would increase the plant's KPD [efficiency factor] by 20 percent. This would result in fuel savings of 20-25 percent. Today, when our rivers are strung with chains of GES, when the chimneys of entire chains of thermal plants are smoking, and when the phrase "nuclear power" has even become commonplace, still another method of obtaining electricity has come on the scene of the power industry. It is based on a phenomenon well known from an ordinary school experiment: when a length of wire

intersects a magnetic field, a current is generated in it.

If, instead of the coils of the magnet we set up a magnetic field tens of thousands of times more powerful than terrestrial magnetism, and instead of the length of wire we place in that field, not a simple conductor, but a gas superheated to 2500-2700 degrees -- a low-temperature plasma -- then its energy will be directly transformed into electricity without any turbines. That is how a magnetohydrodynamic generator operates.

"Our country created the world's first experimental-industrial MHD facility, and is now building the first MHD power plant in Ryazan," says Academician A. Sheyndlin, director of the Institute of High Temperatures of the USSR AN [Academy of Sciences]. "Scientists are now continuing to study the physical processes in MHD generators and other components of the facility, and to improve the facility."

The word "plasma" comes from the Greek for "molded" or "formed." But only now has the fiery plasma started to live up to its original meaning and become pliable in the hands of scientists.

CURRENT FROM FIRE

On the bank of the quiet little Pronya River, where six power generators of the Ryazanskaya GRES are already putting out power, there is a new construction site. And a unique one. Work is in progress here to build the world's first experimental-industrial magnetohydrodynamic power plant (MGDES). Its capacity is 580 MW. It will go into operation in the 12th Five-Year Plan.

"It is a question of the most rational and economical use of organic fuel to generate electric power," remarks V. Volkov, director of the MGDES being built. "Our plant will operate on a plasma. Passing through a powerful magnetic field, it is directly converted into electric power. The MHD generator will work in tandem with a traditional boiler and steam turbine, and the "used up" plasma will be put to work in them. Fuel consumption is reduced, and there is a sharp reduction in the venting of waste products to the atmosphere, which thermal power plants are still guilty of. Natural gas will serve as the fuel for the MHD generator.

The Ryazanskaya MGDES, which will operate on a technology that economizes fuel resources, will become a scientific-research proving ground for the development of advanced plasma power engineering.

FOCUS ON COAL

The MGD generator belongs to a new "profession." Scientists of Krasnoyarsk University have proposed using its amazing capabilities not just to obtain electric power, but also for the multi-purpose processing of coal from the Kansk-Achinsk Basin.

Natural gas is normally used as the fuel in MHD generators. But the Krasnoyarsk scientists are suggesting brown coal for this purpose. Moreover, its combustion

byproducts yield methanol, a valuable industrial raw material. The energy conversion factor is considerably higher from this than with existing technologies. Here there is no need for additional electric power or heat, which are normally required for the large-scale production of methanol. Thus, we achieve continuous and virtually waste-free production. The combined use of cheap KATEK coal as a raw material yields still greater efficiency, since it contains many substances needed to produce liquid fuel.

POWER PLANT OF THE FUTURE

The scientists of the State Scientific Research Power Institute imeni G. M. Krzhizhanovskiy have put low-calorie coal to work in the furnaces of an MHD facility. The proving ground for these tests is the Kokhtla-Yarve TES in Estonia, where research is in progress on an experimental MHD facility with a capacity of 10 MW. Its main difference from earlier models is that it employs solid fuel instead of gas.

A group of scientists at Kokhtla-Yarve is engaged in producing the initial data for the design of the power plants of the future. They will ensure the wider and more efficient use in the power industry of solid low-calorie types of fuel, in which our country is rich.

A new powerful facility is being built to expand the research. With its aid the scientists intend to produce the results required to design the power plants of the future.

12697

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NON-NUCLEAR POWER

PLANT CONSTRUCTION DELAYS, COAL CONTENT PROBLEMS IN KAZAKHSTAN

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 Jan 86 p 3

[Article by K. Isakov, director of Kazenergonaladka [not further identified],
Alma-Ata: "Power: Problems and Solutions"]

[Excerpts] "Continue the formation of the Pavlodar-Ekibastuz Territorial-Industrial Complex. Put into operation the capacities at Ekibastuzskaya GRES-2 and start construction of Ekibastuzskaya GRES-3 and the Yuzhno-Kazakhstanskaya GRES. Complete construction of the Shulbinskaya GES." (From the draft of the Main Directions of Economic and Social Development of the USSR for 1986-1990 and the Period up to the Year 2000).

The generation of electric power in Kazakhstan by 1990 is to reach 96-67 [sic] billion kWh. And by the year 2000 the republic will be generating as much as the entire country did in 1955.

Much work has to be done to perform these tasks. The draft of the Main Directions, as one of the decisive factors in the intensification of production, provides for strengthening the policy of economy. Conservation of resources must become a decisive source for satisfying the growing demands of the national economy for additional material resources. Seventy-five to eighty percent of the growth in demand for fuel, power, raw materials and other materials is to be satisfied by economizing.

But the republic's power industry has a number of problems, which if not solved will make it difficult to deal with the overall tasks. Here, for example, is one of them: even though by the end of the 11th Five-Year Plan the capacity of the power plants of Minenergo [Ministry of Power and Electrification] of the Kazakh SSR had grown by 22 percent and reached 14.33 million kW, growth rates for the generation of electric power are still lagging behind the demand for it.

This lag can be overcome only by putting into service the capacities of Ekibastuzskaya GRES-2 and the Yuzhno-Kazakhstanskaya GRES, which are to become in the near future, along with the operating Ekibastuzskaya GRES-1 and the Yermakovskaya and Dzhambul'skaya GRES, the foundation of the republic's power industry.

However, for a prolonged period the construction of the new power plants has been proceeding at an unacceptably slow pace. And we are entering on the new 12th Five-Year Plan with unfulfilled plans. This lag is due mainly to insuffi-

cient capacities of the construction and installation units of the USSR Minenergo, and the Sredazenergostroy [Central Asia Power Construction] and Ekibastuzenergostroy [Ekibastuz Power Construction] Trusts and the Irtyshegestroy [Irtysheh GES Construction] Administration, all of which are based on the territory of Kazakhstan.

For example, the Sredazenergostroy Trust, which was set up 20 years ago, and is one of the principal general contractors for the construction and expansion of power plants in Kazakhstan, including the Yuzhno-Kazakhstanskaya GRES, is not able to cope with its tasks and is not ready to carry out the program assigned to it in the 12th Five-Year Plan. The capabilities of this trust do not permit it to perform more than 50 million rubles of work per year. But under the draft of the Main Directions it will be required in the near future to absorb about 180 million rubles annually. Also requiring further development is the Ekibastuzenergostroy Trust, whose volume of work the republic's Minenergo estimates should grow to 100-120 million rubles by 1987. The status of hydroelectric construction is the source of serious concern. Construction of the Shulbinskaya GES has been proceeding very slowly. The plans of the past two years were not fulfilled. A large amount of funds has not been absorbed. The quality of construction work is likewise undistinguished. Because of defects, the proper standards have not been met.

Ekibastuz coal is abrasive and contains much ash. And ash is treacherous. Here are a few facts: At Pavlodarenergo [Pavlodar Power], where Yermakovskaya is the main plant, millions of rubles are spent annually to repair or recondition equipment worn out by the high ash content. In the 11th Five-Year Plan alone 94 millions were spent for this.

Here is another example. An increase in ash content of just 8-10 percent reduces the capacity of thermal power plant generators by one-fifth of their rated capacity. How can you have an energy-saving program under these conditions? The Ekibastuzugol [Ekibastuz Coal] Association is now supplying fuel to 22 of the country's power plants. Eleven of these are in Kazakhstan, so we certainly cannot be indifferent to the quality of coal.

The draft of the Main Directions states: "Improve coal quality and increase the amount of it that is processed." Ekibastuz coal is not processed. It can only be homogenized. We should therefore add to this clause: "or homogenized," since of the total volume of coal mined -- 70 million tons -- only 10 percent is homogenized.

This must further be done because the draft also states: "Rapidly develop the mining of coal by the advanced open-pit method and increase the proportion of it to 46 percent of all coal mined." Under the conditions of the Ekibastuz Basin the rotary excavator does not single out the coal. It cuts seams of coal and rock together. The homogenization of coal is needed here all the more when you consider the requirements not just of existing plants, but of those under construction.

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PIPELINE CONSTRUCTION

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DEPUTY MINISTER DISCUSSES PLANS FOR PIPELINE CONSTRUCTION

Moscow STROITELSTVO TRUBOPROVODOV in Russian No 9, Sep 85 pp 6-9

/Article by Deputy Minister of USSR Ministry of Construction of Petroleum and Gas Industry Enterprises G.N. Sudobin: "Strategy of Acceleration"/

/Text/ In the great variety of problems--political, economic and social--that are being resolved in our country, the development of the fuel and energy complex is undoubtedly one of the most crucial. Every industry worker, engineering and technical staff member and employee has the right to feel proud of his participation in the realization of the most important tasks in the cause of accelerating scientific and technical progress and augmenting the productive forces of the Motherland.

The collectives note their own professional holiday--the All-union Oil and Gas Industry Workers' Day--with high labor indices. They are prepared not to lower them in the future, so as to report with honor to the 27th CPSU Congress on the successful fulfillment of their targets.

The successes of the industry are considerable. The program of constructing a six-line gas pipeline system in West Siberia and the western areas of the country 19,000 km long, projected by the 26th CPSU Congress, was completed ahead of schedule. Much has been written about the scale of this gigantic construction. It is enough to say that in the volume of construction and assembly work it exceeds such constructions as the BAM, the KamAZ, the VAZ and the Atomash taken together. The 5-year program of contract work in the sum of almost 25 billion rubles was completed in the first quarter of this year, and the work volume target in West Siberia was fulfilled even earlier.

Over 4½ years of the Eleventh 5-Year Plan, approximately 50,000 km of oil and gas pipelines were placed in operation, along with 281 pumping and compressor stations, approximately 8 million square meters of housing and a large number of other production and cultural and social-purpose projects. A crucial turning point occurred with regard to petroleum products pipelines. Approximately 4,000 km of them were placed in service, twice as much as in the previous 5-year plan. The amount of construction and assembly work increased by 44 percent, and by 65 percent in the Tyumen and Tomsk oblasts. The productivity of labor grew by almost one quarter (23.9 percent) in the face of a 5-year plan target of 18 percent.

The greatest contributions to the realization of the 5-year plan targets were made by Glavvostoktruboprovodstroy /Pipeline Construction in the Eastern Regions Main Administration/, Glavtruboprovodstroy /Pipeline Construction MA/, Glavsibtruboprovodstroy /Pipeline Construction in Siberia MA/, the Sibkomplektmontazh /Siberian Assembly and Installation/ Association, and the Severtruboprovodstroy /Northern Regions Pipeline Construction/, Uralneftegasstroy /Urals Construction of Petroleum and Gas Industry Enterprises/, Kazymgazpromstroy /Kazym Gas Industry Construction/, Pribtruboprovodstroy /Ob. Region Pipeline Construction/, Vostoknefteprovodstroy /Eastern Petroleum Pipeline Construction/, Ukrnefteprovodstroy /Ukrainian Petroleum Pipeline Construction/, Krasnodartruboprovodstroy /Krasnodar Pipeline Construction/ trusts and many others.

Merit in the fulfillment of party and governmental tasks also belongs to our remarkable workers, engineers, technicians, production commanders and construction managers. Among the best were Heroes of Socialist Labor V.Ya. Belyayev, I.G. Shaykhutdinov and N.P. Nezhdanov, the leaders of the major collectives and the initiators of the introduction of profit-and-loss accounting and leading forms of production organization. These were the team of the USSR State Prize Laureate V.I. Brizkun of the Tyumenneftegazmontazh /Tyumen Petroleum and Gas Assembly/ Trust, the excavation team under Ya.-S.A. Myakush of the Welding and Assembly Trust and many others.

Work is now proceeding at full speed on the completion of this year's plan. The industry must place in operation approximately 8,000 km of pipeline, 18 pumping and 36 compressor stations and approximately 1 million square meters of housing.

First and foremost, the basic line work must be completed this year on the Yamburg-Yelets I gas pipeline, which will enter into operation on its entire length by the opening day of the 27th Party Congress. A great amount of work remains on a number of petroleum products pipelines, on the Kursk-Kiev gas pipeline, the branch to the Shaturskaya TETs and on projects in Central Asia, Kazakhstan, the Moscow region and others.

It is impossible to conclude the year successfully without intensive efforts, precise work, self-discipline, strict discipline and the organization and mobilization of all potential. This regards first and foremost the organizations of Glavtruboprovodstroy, Glavsredaneftegazstroy /Central Asia Petroleum and Gas Construction MA/ and to the Bryansktruboprovodstroy /Bryansk Pipeline Construction/, Shchekingazstroy /Shchekino Gas Construction/, Mosgazprovodstroy /Moscow Gas Pipeline Construction/, Tatnefteprovodstroy /Tatar Petroleum Pipeline Construction/ trusts and others.

Even greater efforts are required to accomplish the tasks of the upcoming 5-year plan.

The April (1985) CPSU Central Committee Plenum, advancing the task of accelerating socioeconomic development, envisaged not only an increase in the rate of economic growth, but a qualitatively new approach to moving forward on the basis of a structural rebuilding of production and an acceleration of scientific and technical progress. These issues were formulated at a CPSU Central Committee conference held in June of 1985.

The areas of work for operators and oil and gas complex construction workers were clearly defined for the Twelfth 5-Year Plan.

The distinguishing features of the ministry's construction program for the next few years are the following: a significant increase in the volume of contract work; the further shift of basic work volume to regions with extreme conditions (the arctic regions of Tyumen Oblast, the desert and arid regions of the Caspian Basin the Central Asia); a fundamental change in the structure of operations, made possible by the sharp growth in the share of surface construction.

In the shortest period of time, new more radical solutions must be found, all existing potential for raising the efficiency and quality of construction must be put into operation, and the achievements of science and technology must be incorporated into production.

What are the areas for accelerating scientific and technical progress in the industry?

First and foremost is the intensive development of industrial methods of operation in surface construction.

In recent years, the level of prefabrication and plant preparation of structures has grown and the mix of applied materials and products has expanded. The volume of fully-assembled construction reached 62 percent, which is greater than the national average for level of prefabrication. This is, however, inadequate for a new level of industry development. The level of prefabrication can be raised by converting surface projects into modular and modular-assembly structures with full plant preparation and maximum compactness. The incorporation of a unified industry preparation system and the flow-line organization of construction, ensuring the simultaneous introduction of surface structures and the line parts of pipelines, are essential. An industry system of industrial design for surface structures must be developed, the application of large-panel housing construction must be expanded, and new efficient construction designs and materials must be incorporated.

The proportion of work accomplished in complete modular form should also be increased. It is now 65 percent. The existing capacity for modular unit construction in Tyumen Oblast must be doubled and additional capacity must be created in Tomsk Oblast, in the Komi ASSR and in Kazakhstan. It is necessary to expand the production of modular units, raise their quality and not produce them in "semifabricated" form, as is now done in Glavyuzhtruboprovodstroy /Southern Pipeline Construction MA/, Glavvostoktruboprovodstroy and Glavneftegazpromstroy /Petroleum and Gas Industrial Enterprise Construction MA/, but fully assembled in the shortest possible time.

Along with Mingazprom /Ministry of the Gas Industry/ and Minneftepeom /Ministry of the Petroleum Industry/, project design solutions must be reviewed from the point of their correspondence to new standards and their maximum industrialization and prefabrication. In the opinion of specialists, this will allow a reduction in site coverage of 15-40 percent, in the length of service lines of 10-25 percent, and in the structure volume of 5-30 percent.

A most important task is the development of special standards or project design in superblock form taking into account the rules of field construction project layout on the continental shelf.

It is quite clear that it is exceedingly difficult to expand the application of the block-set method without the participation of client ministries and the machine builders, and therefore the scientists and specialists of the industry, under the guidance of the Technical MA and VNIIST /All-union Scientific Research Institute for Trunk Pipeline Construction/ must prepare special nationwide standard documents and proposals.

The share of fully-assembled housing construction should be increased. In 1985 it reached 67 percent. It is necessary to redesign housing construction enterprises, converting them to the output of homes of new progressive series with the optimal collection of modular sections, improved thermal design qualities and articles of increased factory preparation and high quality.

At the Minneftegazstroy collegium, a program for the industrialization of the construction of industrial buildings, housing and social and cultural projects was reviewed and approved. The realization of this program in housing construction alone will permit the freeing up of thousands of high-skilled construction workers.

A second main area, demanding constant attention and the persistent work of industry production workers and scientists, is the further improvement of line construction.

The tasks here are the following: increasing the rate of trunkline construction, ensuring a high level of reliability and quality, and increasing the productivity of labor.

The most effective overall solution of these tasks is the universal application of pipe with factory insulated coating, the broad application of modern Sever- and Styk-type automated welding complexes, and the supplying of line workers with powerful excavating machinery.

Adhesive plymer tape is currently used in great quantities for protecting pipelines from corrosion. Additional measures should be adopted for increasing the production of insulating tape, especially for insulating "hot" sections of pipeline.

The share of automatic welding on trunk pipelines today is 56 percent, and the 100 percent inspection of pipe joints of 720mm diameter and greater is ensured.

The tasks of the Twelfth 5-Year Plan require the retooling of the welding industry based on the broad application of electric-resistance welding in line and field construction, of pipelines of 57-1420mm diameter, the transition from hand to automatic welding and the creation of mechanized continuous-flow lines for assembly and automatic welding of box units, connecting parts and other types of metal structures.

The realization of the projected targets will permit an even greater increase in the share of automatic welding in pipeline construction, a significant raising of the productivity of welding operations, and will free up thousands of highly skilled workers.

Subunits of Glavukr neftegazstroy, Glavsibtruboprovodstroy and Glavtruboprovodstroy are carrying out much work on incorporating the Sever and Styk complexes. The new welding technology is being incorporated in an unsatisfactory manner, however, in the Omsknefteprovodstroy /Omsk Petroleum Pipeline Construction/, Vostoknefteprovodstroy /Eastern Petroleum Pipeline Construction/, Novosibirsktruboprovodstroy /Novosibirsk Pipeline Construction/, Rostovtruboprovodstroy /Rostov Pipeline Construction/ trusts and some others. It does not suit the highly skilled specialists of Glavvostoktruboprovodstroy and Glavyuzhtruboprovodstroy to be conservatives and lag the demands of the time.

Great tasks stand before the science of the industry and the production workers in the area of pipeline and metal structures welding in the Yamburg and West Kazakhstan fields. For joining high-strength pipe it is necessary to use electric-resistance methods and powdered wire. For small-diameter pipe, the application of arc-resistance welding and soldering must be expanded. Up until now there is no strict scientific basis for our knowledge of nonpermissible dimensions, features and combinations of defects from the point of view of ensuring the fitness of welding joints. All standards are based on the results of practical experience and not on data from physics experiments.

The ballasting of pipelines is a complex problem for the industry. To maintain the projected positioning of pipelines in water-filled or marshy terrain, more than 1 million cubic meters of ferro-concrete weighting is used every year. Its manufacture, transport and application is exceedingly labor-intensive. Progressive solutions have been developed in the industry on ballasting pipelines. These must be more rapidly and broadly incorporated.

This is, in the first place, the application of nonfabric synthetic materials (a VNIIST proposal). The use of only 1,000 tons of these materials for ballasting permits a saving of approximately 40,000 tons of cement and 3,000 tons of metal, lowers labor expenditures to one-seventh of earlier levels and sharply reduces transportation expenses. The main production administrations are incorporating this method too slowly.

Another solution is the use of the residual slag of metal production with a volumetric mass of 3-3.2 tons per cubic meter. The effect of such a solution is to cut labor expenditures in half, lower metal consumption by 25 percent and eliminate the use of cement and fillers.

In all, just one-third of pipeline lengths are reinforced with anchoring apparatus. It is necessary to continue the search for efficient anchor designs for deep marshes, river crossings and permafrost zones.

Problems of line construction on frozen soil are insufficiently developed in scientific and practical planning. The experience of many years must be

summarized, broad experiments must be conducted, optimal designs of pipelines and structures must be created for erection on permafrost, and new construction standards and rules must be created taking into account the actual conditions of working on these projects. Industry science is indebted in this to the construction workers.

Among the most important problems is the transition to yearround pipeline construction in severe natural and climatic conditions. Its resolution is being sought in accordance with the directed overall program that envisions, in the end, the creation and incorporation into construction of trunk pipeline line sections of highly mechanized overall flow lines equipped with efficient marsh-traversing equipment.

Progress in this area proceeds slowly, however, with much lagging.

A current problem today is to achieve fuller utilization of the winter construction season. Unfortunately not all organizations working in the North prepare fully in good time, that is, in the summer, for work in winter.

At a number of projects the concentration of necessary resources is not provided, the equipment is not repaired, the connection units of compressor and pumping stations are not equipped with pipe, connecting parts and box units, units are not enlarged, a stock of lubrication materials is not created, and camps are not prepared.

This relates, in the first place, to many trusts and administrations of Glavtruboprovodstroy, Glavukr neftegazstroy, Glavyuzhtruboprovodstroy and Glavvostoktruboprovodstroy that are devoted to oilfield construction in Tyumen Oblast.

It is necessary to raise the level of the fulfillment of production work designs by main administrations, trusts, and technical construction organizations. The construction engineering preparation of routes should find reflection in it. It is important to plan and execute construction in such a way that testing and startup work can be carried out in favorable temperatures. With good production preparation, the double-shift operation of all equipment in the winter can complete a great amount of work and resolve specific tasks with the least expenditures.

The improvement of organizational structures and control systems occupies an important place in questions of accelerating scientific and technical progress, along with the further development of team forms of production and labor organization and their stimulation.

There are 2,500 cost-accounting teams working in the ministry, fulfilling 52 percent of construction and assembly work by the team contract method. The proper return from team contracting, however, still does not exist.

In the majority of trusts small teams predominate and their activity is not planned and is poorly accounted for. The losses of work time here are considerable. It is difficult to direct such teams toward the achievement of end

production. The importance of a radical restructuring of the extant structure of basic collectives is now indisputable. Systematic work is needed (of which, unfortunately, there is still none in many main production administrations) on the creation of enlarged cost-accounting combined teams and team-sections (flow lines) of end production. The necessity has already arisen this year to create enlarged cost-accounting teams in every trust. Based on their experience, a reconstruction and enlargement of the brigade structure should be conducted. Ground-level cost-accounting collectives should become a basic objective of management, planning and accounting and the subject of the constant attention of the engineering services. The productivity of labor in cost-accounting teams is twice as high as ordinary ones.

The incorporation of the team contract in line construction requires further expansion. Experiments on the Urengoy-Uzhgorod and Urengoy-Center-I and II gas pipelines showed that combined manufacturing flow lines (KTP), operating in new conditions, achieved higher results than traditional flow lines. The average monthly rate of line work increased from 7.3 to 14.1 km. The actual labor expenditures on 1 km of gas pipeline prepared for testing decreased to less than half. In the face of a growth in average wages of 36 percent, the productivity of labor of an individual worker grew by 83 percent.

An analysis of the results of the experiment showed that a KTP in the complement of a combined administration was more mobile and energetic, since the administration apparatus participates directly in the operational leadership of the flow line, organizes interaction with customers and formulation of technical documentation, and provides for equipment repair on the route, the engineering and technical preparation of production, and the resolution of social issues. This permits the engineering and technical workers of the flow line to concentrate their attention on the immediate organization of production and labor on the route. In the estimation of the majority of specialists, the organizational work of the flow line is optimal when the basic operational KTP is in the complement of the pipeline construction and assembly administration on which the obligations of engineering preparation of production, material and technical supply and social security of the flow line are placed. The maximum synchronization of the fulfillment of basic types of work is achieved, and the opportunity arises for their overall evaluation by end result. The allocation of engineering-and-technical and road-and-transport work to the complement of the specialized administrations of one and the same trust is explained by the fact that the requirements for synchronizing these operations are less rigid than in KTP operations.

At the same time, an analysis of the operation of combined cost-accounting flow lines reveals some shortcomings and omissions. First and foremost, planning and technical production supply systems were not oriented toward flow lines.

Questions of incorporating new planning and management methods remained unanswered. The necessary assistance, unfortunately, was not rendered to flow lines to improve the structures and systems of control, planning, accountability and the provision of standardized manufacturing documentation. The planning of labor indicators was conducted in traditional fashion, analogous to construction administrations. The established indicators for both wages and

quantity did not correspond to the indicators of the cost-accounting contract agreements concluded between the labor collectives and the trusts.

The necessity has arisen of moving from experiment to the broad incorporation of combined manufacturing flow lines in line construction, taking into account the perfecting of the planning system.

The operation of combined manufacturing flow lines was most successfully organized in Glavtruboprovodstroy, where the majority of the contract collectives met the targets stipulated by the cost-accounting agreement obligations. The main administration and trusts, along with the labor organization and wages administration of the ministry and the Neftegazstroytrud NOT /Scientific Organization of Labor/ Center, carried out careful preparatory work, established constant monitoring of the work of flow lines in the new conditions, and defined technically-based economic indicators.

The incorporation of KTPs in Glavsibtruboprovodstroy and Glavvostoktruboprovodstroy is being implemented. This work, however, is being conducted unsystematically, by fits and starts, and without the proper persistence.

The main production administrations, first and foremost Glavvostoktruboprovodstroy, Glavyuzhtruboprovodstroy and Glavuktruboprovodstroy, must quickly conduct an assessment of their subunits, determine their workload for the next 2 years, and adopt for incorporation approved structural solutions. Industry science, and first and foremost specialists and scientists of the NIPiorgneftegazstroy /Scientific Research, Planning and Design Institute of Petroleum and Gas Construction/, VNIIST and the Planning and Economic MA should assist the trusts in this.

The quality of production is an objective and summary indicator of the level of the specialization of production, working conditions and labor discipline and of the correspondence of constructed projects with modern technical economic requirements.

Work on ensuring the quality and reliability of oil and gas industrial projects in the industry is conducted in accordance with the scientific and technical program. Over 4 years of the 5-year plan, the frequency of failures in pipeline testing per 1,000 km is less than half of that in the same period of the 10th 5-Year Plan.

At the same time, the level of quality achieved cannot satisfy us today in light of party and government requirements. There are still many reprimands for the quality of projects constructed by Glavneftegazstroy and Glavzapsibzhilstroy /West Siberian Housing Construction MA/, and defective output is tolerated in welding and assembly work in Glavvostoktruboprovodstroy. Permissiveness on the part of chief engineers Comrades Tukayev and Duel of the Vostoknefteprovodstroy /Eastern Petroleum Pipeline Construction/ and Kuybyshevtruboprovodstroy /Kuybyshev Pipeline Construction/ trusts made possible violations of the construction standards and rules in the production of welding work and pipeline testing. And the slipshod workers did not receive the proper punishment. The notions of order, discipline and responsibility acquire a keen

social and moral significance when reliability and quality are under discussion. To introduce order in the observance of the SNiP /Construction Norms and Regulations/ manufacturing standards and instructions and to create the necessary barrier to slipshod workers is the strict obligation of subunit leaders and every industry worker.

Life now demands a radical restructuring of management style and methods, an evaluation of the activity of the industries, enterprises and organizations and the psychological reorientation of workers of all levels of the administration.

In the ministry, with the broad participation of the managers of production subunits, engineers, scientists and specialists, a creative search is being conducted for new solutions, and specific measures are being developed for the incorporation of new equipment, progressive technology and labor modes and methods.

A review of the scientific problems of pipeline transmission at a session of the USSR Academy of Sciences Presidium and joint sessions of the collegia of the ministry and the UkSSR Academy of Sciences served as an important impetus for the attraction of basic science to the solution of more complex industry problems.

There are currently approximately 80,000 engineering and technical workers in the industry, and approximately 2 percent of all industry labor reserves are occupied in the area of science and scientific services. This is a large group of specialists that has the requisite knowledge and practical experience. It is necessary to raise the prestige of engineering, technical and scientific workers on both the moral and the material planes, as well as to create the necessary conditions for their enterprising and purposeful work.

The ministry has drawn the scientific potential of 50 institutes of higher education and other ministries and departments into scientific-research and design work.

The annual incorporation of more than 300 developments allows an annual economic saving of 350-400 million rubles.

But now this is not enough. It is necessary to further raise the creative activity of workers, engineering and technical workers and scientists. Today diligence alone is not enough. Competence, a feel for the new, initiative and a willingness to take responsibility upon oneself have decisive significance.

Our common task is to incorporate persistently into life all that is new and progressive, to reveal more sharply shortcomings and potential in production, and to strengthen the universal order and discipline with the aims of further raising the efficiency of production and the welfare of our people. Such is the strategy of accelerations.

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PIPELINE CONSTRUCTION

BRIEFS

YAMBURG-YELETS CONSTRUCTION--The collectives of Minneftegazstroy /Ministry of Construction of Petroleum and Gas Industry Enterprises/ and Mingazprom /Ministry of the Gas Industry/ have come forward with an initiative to complete construction on the Yamburg-Yelets (line I) gas pipeline ahead of schedule in commemoration of the 27th CPSU Congress in February of 1986. By order to Minneftegazstroy the execution of the following measures are projected. Weekly, daily and monthly targets are established for trusts and flow lines to ensure completion of the construction on the 1,200-km line section of the Yamburg-Yelets-I gas pipeline in the planned time periods on the section from the Pravokhettinskaya Compressor Station to the Kingurskaya Compressor Station with the beginning of gas transmission no later than 15 January 1986. Main contractor subunits along with subcontractors and suppliers of construction structures will develop special measures to ensure the accelerated construction of the compressor stations Pravokhettinskaya--by 15 January, Lyalinskaya--in January and Komsomolskaya--in February of 1986. The initiative of the Kazymgazpromstroy /Kazym Gas Construction/ Trust to place the Verkhnekazymskaya Compressor Station in operation ahead of schedule in 1985 is approved. The Production and Regulation Main Administration /MA/ of Minneftegazstroy, along with Mingazprom, has developed schedules for the completion of the output of design and budget documentation and the supply of component equipment for compressor stations. Measures were adopted for the timely provision of building materials to the construction site. The Transport Administration was obliged to ensure the supply of various freight to the construction location. The All-union Repair and Pipeline Equipment Association was required to manufacture an additional 30 PV-204 pipe carriers on the KRAZ 255B1 chassis. A number of measures concern the composition of the construction of right-of-way electrical transmission lines and the structure of underwater crossings in accordance with the accelerated rate of construction of the line section of the gas pipeline. Personal responsibility was assigned for the fulfillment of all types of work in the projected time periods. /COPYRIGHT: Izdatelstvo "Nedra" "Stroitelstvo trboprovodov", 1985/ /Text/ /Moscow STROITELSTVO TRUBOPROVODOV in Russian No 9, Sep 85 p 9/ 12821/12228

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ENERGY CONSERVATION

FUEL, POWER CONSERVATION TASKS FACING VARIOUS SECTORS

Moscow PRAVDA in Russian 21 Feb 86 p 1

[Unattributed editorial: "Conserving Fuel and Energy"]

[Text] Ever further north and east march the drilling rigs of the oil and gas workers, and under ever more difficult conditions work the miners. Every ton of oil and coal and every cubic meter of gas is produced with ever increasing expenditures of manpower and equipment. That is why the careful and rational use of fuel and energy has become an important condition for the intensification of production and the raising of its efficiency.

The strengthening of the climate of economy and the transformation of resource conservation into a decisive source of satisfaction for the growing needs of the national economy are projected in the draft of the Fundamental Areas. The satisfaction of 75-80 percent of the increase in fuel, energy and material demand will be achieved through their conservation.

Many labor collectives are determinedly mastering the science of zealously conducting operations. Among them is the Moscow Motor Vehicle Plant imeni Leninist Komsomol. Last year the autoworkers worked for two days on the energy resources that were conserved above the plan. In the 12th Five-Year Plan, the incorporation of progressive processes is continuing and the full automation of energy supply is projected, which will aid in the conservation of millions of kilowatt-hours of electricity. The collective of the Voskresensk Minudobreniye Production Association imeni V. V. Kuybyshev is working efficaciously in this area. Many thousand tons of fertilizer have been produced here above the plan in recent years. And all of this was obtained from economized raw materials using conserved electricity and fuel.

The significance of strictly observing the regime of electricity utilization has grown sharply in the winter, especially in the peak load hours. The organs of energy inspectorates, however, are revealing many instances of extravagant expenditures at enterprises and in organizations. Violations are too frequent in Moldavia and in Voronezh and Sverdlovsk oblasts. The party committees and enterprise managements should strictly monitor the rational utilization of electricity. It is necessary to implement a purposeful policy of fuel and energy conservation in all areas of the economy.

The discussion also concerns improving the structure of the energy equation, reducing the proportion of petroleum products in it, and incorporating progressive economic processes. The replacement of the open-hearth method of steel smelting with the Bessemer converter method, for example, reduces energy expenditure by 27%. The accelerated introduction of continuous-casting steel installations promises large fuel and energy savings. The program of re-equipping the ferrous-metal industry envisions the transition to energy-conserving processes. The implementation of this program should become a concrete everyday matter for metal industry workers.

A fifth of operating expenditures in transportation go for fuel, electricity and lubricating materials. That is why it is so important to reduce transportation expenditures. If, for example, railroad workers could conserve a total of one percent of fuel and energy, this would produce a saving of approximately 600 million kilowatt-hours of electricity and more than one hundred thousand tons of diesel fuel a year. The resolution of this task does not depend on transportation workers alone. The corresponding ministries that create equipment for the sectors of transportation must accelerate work on improving the design of motor vehicles, tractors, combines, diesel locomotives, maritime and river vessels and construction and road machinery, as well as other machinery and engines, so as to reduce the consumption of fuel and lubricating oil.

To conserve fuel and energy in transportation means not to permit idle time for motor vehicles, vessels and railcars and to strive for greater mutual understanding among transportation workers and the shippers and recipients of freight. Executives still frequently issue clearly inflated orders for petroleum products without any real concern for economizing. Imperfection in transport operations planning and poor monitoring of the rational utilization of fuel and energy have an effect. And party and trade-union committees of ministries and enterprises along with national monitors should have input here.

The economizing of material resources depends greatly on the work of scientists and designers. The quality of plans in many cases, however, leaves much to be desired. It is sensible to recall in this regard the initiative of the Gidroyekt [All-Union Planning, Surveying and Scientific Research] Institute imeni S. Ya. Zhuk which proposed that especial attention be devoted to economizing funds and reducing labor expenditures in the development of plans.

There are considerable reserves for economizing in communal housing, to which twenty percent of the country's total fuel and energy resources are applied. The small boilers of various departments are especially uneconomical.

It would be expedient for the ispolkoms of local soviets of peoples deputies to centralize, as much as possible, the heat and power supply in cities and towns. The economical utilization of energy resources in rural localities must be monitored.

The conservation of fuel and electricity is not only a task for administrative organs and production collectives, but for every individual. After all, more of these precious resources are expended in day-to-day life than are required by several industrial sectors taken together. And much here depends on the cultivation of thrift in labor collectives, schools, professional and technical institutes and higher educational institutions.

The duty of party committees and all communists is to close everywhere the channels of waste of petroleum products, natural gas, coal, and heat and electrical energy, and to use these resources thriftily and carefully. Ministries, departments, party committees and local soviets should make business managers answer strictly for the extravagant conduct of business and monitor the timely transition of production to energy-conserving processes and the use of secondary heat. Indicators of thrift and economy should become basic in summarizing the results of socialist competition. The experience of the Kriogenmash NPO [Scientific Production Association] near Moscow and other leading enterprises in the creation of personal and collective accounting for thrift should be more widely disseminated.

The struggle for economy and thrift is not a short-term campaign, but one of the decisive factors in the transfer of the economy onto the rails of intensive economic development and the successful fulfillment of the targets of the 12th Five-Year Plan.

12821

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GENERAL

USSR POWER MINISTER MAYORETS ADDRESSES PARTY CONGRESS

Moscow Domestic Service in Russian 1500 GMT 3 Mar 86

[Speech by Anatoliy Mayorets, minister of power and electrification, at 3 March session of the 27th CPSU Congress in the Kremlin Palace of Congresses--recorded]

[Text] The inudustry is persistently searching for ways to raise production efficiency. In the second half of the past year, we elaborated and applied new methods of planning and of providing economic incentives for the production of electric power. The economic norms for the accumulation of material incentive funds have been made directly dependable on the degree of utilization of the created production capacities. These economic levers have made it possible to draw over 10 million kilowatts of additional power capacities in the work at power stations by the end of the year, which is equal to their average annual increase due to new construction. We understand only too clearly that this is only the beginning of a great deal of work on using the existing reserves.

The future 5-year period is the period of realization of the first stage of the USSR energy program. Power engineering is one of the basic branches of the national economy. It has been allotted the principal role in fulfilling the task of accelerating scientific and technical progress, and on this basis, of the further rapid economic and social development of the country, set by the CPSU Central Committee. We consider the output of electric power of 1,840 billion-1,880 billion kilowatts, planned to be achieved in the basic guidelines by the year 1990, as the lowerst possible target.

Atomic stations are of special prominence in power engineering and in scientific and tehcnical progress. Realization of the course of reconstruction of the fuel structure of the country, adopted by the party, through the accelerated development of nuclear power engineering, is a task of national scale. The further rise in efficiency of power engineering output is indissolubly linked with accelerating scientific and technical progress. It is being envisaged to introduce widely high-yield nuclear reactors, turbo-units, gas turbines, paragass, and magnet-hydrodynamical units, automated systems of control over technological processes in power engineering. On the basis of development of new machinery, it has been planned to provide a minimum of 85 percent of the increase in the electric power output in the 12th 5-year period without any organic fuel consumption. Production of electric

and thermal power claims higher and higher consumption of labor and funds. In this connection, sparing use of these resources should be a permanent nationwide concern. Simplicity of and easy access to electric power have, with many people, generated an image of inexhaustability of our energy resources, have dulled the feeling of needing to save it. We believe that this problem should be dealt with along two interlinked lines: perfecting the system of accounting, monitoring, and controlling the consumption of electric power capacity, thermal power, and enhancing economic incentives for a reduction in consumption of all varieties of power at every working desk, in every house, and at industrial and agricultural enterprises.

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GENERAL

ACCELERATION OF WEST SIBERIAN DEVELOPMENT DESCRIBED

Moscow GAZOVAYA PROMYSHLENNOST in Russian No 2, Feb 86 pp 2-9

[Materials prepared with the participation of subunit managers and specialists of the central apparatus of Mingazprom [Ministry of the Gas Industry] Ya. I. Avdeyev, V. V. Dubinin, V. M. Venkov, A. I. Yakovlev, Yu. A. Zaytsev, V. F. Abubakirov and G. P. Sulimenkov: "The West Siberian Policy of Acceleration"]

[Text] The development of measures for the realization of the proposals and recommendations of Comrade M. S. Gorbachev based on the results of his visit to the West Siberian Complex were being implemented with a careful and all-round evaluation of the capabilities of industry science and practice with a regard for the organizational, creative and productive reserves of all administrative levels. The managers of territorial main administrations, scientific research and planning organizations, and all-union industrial and production associations took active part in it.

The careful study of questions of the further development of the West Siberian Oil and Gas Complex in conjunction with related industry workers made it possible to compose and approve specific plans and measures, the fulfillment of which will serve the cause of the successful realization of the Fundamental Areas of Economic and Social Development of the USSR for the Years 1986-90 and for the Period to the Year 2000.

The published material will familiarize the readers with the state of realization of the projected plans and measures.

Strengthening the Union of Science and Practice

The resolution of central problems of accelerating scientific and technical progress in the gas industry of West Siberia requires a strengthening of scientific research in the sphere of assimilating gas-distillate petroleum accumulations and forecasting the prospects for sector development in the region. To accomplish these aims, Mingazprom, in conjunction with GKNT [State Committee for Science and Technology], has produced a series of proposals for strengthening the scientific and planning subunits, expanding the experimental base and creating scientific-production associations.

Tyumengaztekhnologiya NPO [Tyumen Gas Technology Scientific-Production Association] is an organization formulated for the independent resolution of

major scientific problems, the execution of design and planning work, the manufacture of prototypes and small industrial lots of new equipment and, in conjunction with the enterprises of Glavtyumengazprom [Tyumen Gas Industry Main Administration], for the direct on-site incorporation of developments at the gas industry enterprises of West Siberia that are aimed at increasing the volume of gas, oil and condensate production in this region and improving the technical and economic indicators of production.

Soyuzgaztekhnologiya NPO [All-Union Gas Technology NPO] is created to concentrate in one association practically all research of an industry nature; on well drilling, production, gas refining and transmission, the creation of underground gas storage and other problems, including the utilization of natural gas as motor fuel and strengthening the "research--production" cycle.

The development of the participation of academic science in resolving the problems of the West Siberian Gas Complex is a major creative reserve for accelerating scientific and technical progress. The collaboration of science with the scientific research organizations of the industry is a vital contribution to the fulfillment of joint programs, with the aid of which such problems can be solved, as:

- the optimal distribution of gas-consuming enterprises on the territory of West Siberia;

- the development of fundamentally new methods of gas-condensate field operations permitting a substantial increase in component return;

- the forecasting of changes in the geological environment under the effects of the construction and operation of gas industry enterprises and developing technical solutions for protecting the ecology of the North;

- the creation of a set of econometric models for the USSR Unified Gas Supply System;

- the development of new methods of paraffin control in gas-condensate petroleum fields and the creation of new domestic inhibitors of paraffin deposits and corrosion;

- the creation of fundamentally new methods of heating process pipelines, fittings, rigs and drilling equipment;

- the development of energy-conservation technology for the deep extraction of ethane from natural gas and heavier hydrocarbons;

- the study of the effect of the extreme conditions of the North on the human organism and the issue of recommendations for working conditions, rest and feeding; the evaluation of the efficiency of existing labor wage terms, material incentives, and the assignment of privileges and compensation for workers who work continuously in these regions, as well as those fulfilling work under the expeditionary-shift method and a number of others.

The active participation of the Academy of Sciences and its Siberian Department in the problems of West Siberian Gas Complex development makes possible the fuller utilization of scientific potential in the interests of the rapid development of the gas industry of the region.

The improvement of the technology of gas and gas-condensate deposit development, taking into account the latest achievements in the sphere of geophysical methods that make possible an increase in the precise evaluation of the condition of deposits, renders efficient assistance for the policy of accelerating scientific and technical progress.

The collaboration of Minpribor [Ministry of Instrument Making, Automation Equipment, and Control Systems] organizations in the creation of automated systems using microprocessor technology is becoming ever closer. They are currently participating in the installation and start-up work on a UKPG-1AS control system at Urengoy and are preparing for the realization of a program for the broad-scale introduction of new equipment and systems for automation in industries, plants and gas transmission facilities.

Social Conditions are at the Center of Attention

The assimilation of the gas fields of West Siberia and the construction of powerful gas transmission systems entailed the energetic development of the social infrastructure. New residential towns for gas workers appear every year on the map of the country. Over the last five-year plan alone, 14 new towns were built in Tyumen Oblast, the population of the city of Nadym grew by 1.5 times and that of Novyy Urengoy--by 4 times.

Much has been done, but the rate of civil residential construction should be increased. Many gas workers have to live in the cities of railcar-houses and ties that embellish the construction sites of almost all inhabited points in the north of Tyumen Oblast. The construction of stores and welfare service enterprises is lagging, and they occupy the exceedingly sparse living space of the first floors of houses that are in use. The situation is even worse with the erection of cultural facilities, clubs, theaters and sports facilities, which for relaxation must substitute structures outfitted for production.

CPSU Central Committee General Secretary Comrade M. S. Gorbachev spoke of these shortcomings in detail in his appearance at a meeting of the party and management active membership of Tyumen and Tomsk oblasts in September of last year.

Whatever the cause of these shortcomings, why does the rate of construction of residential and social-welfare facilities chronically lag the production rate? The main reason is at that the stationing areas of the production subunits of Mingazprom, Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises]--the general contractor--has a single construction enterprise for civil residential construction--the Nadym Residential Construction Combine, the capacity of which is insufficient even to provide development for the cities of Nadym and Novyy Urengoy. Its product line is also poor. Moreover, Minneftegazstroy in West Siberia does not have a single

enterprise for producing structures for social and cultural-welfare facilities. The construction designs of schools and kindergartens are basically supplied by the general construction ministries from the central regions of the country.

Gosgrazhdanstroy [State Committee for Civil Construction and Architecture] has also fallen into the debt of the gas industry of West Siberia. Its organizations have still not created standard building plans for theaters, clubs, trade centers and social welfare enterprises that take into account the application of industrial designs for the conditions of the Far North. There are also no standards for the planning of residential towns in these areas of the country.

Currently Mingazprom and Minneftegazstroy, in conjunction with the Tyumen CPSU Obkom and the Tyumen Oblast Ispolkom, have planned and are implementing a broad program for the radical improvement of the social conditions of industry workers in West Siberia. It has been resolved to create here a construction industry for residential and social-welfare construction in the shortest possible time.

Minneftegazstroy will construct and introduce new capacity in Surgut that includes the production of designs for social and cultural-welfare buildings. The Nadym Residential Construction Combine will be further developed, and its capacity brought to 150,000 square meters a year. The product line of buildings produced by this combine will be expanded considerably. The Vinzili Combine will go over to the production of modular-room residential homes according to new improved plans. Also projected here is the output of social and cultural-welfare building designs.

Mingazprom will introduce capacity for the output of residential home designs in the towns of Vinzili and Komsomolskiy. On the basis of existing clay stocks, the construction of brick plants in Novyy Urengoy and Komsomolskiy is projected.

USSR Minlesbumprom [Ministry of the Timber, Pulp and Paper, and Wood Processing Industry], with the capital investment of Mingazprom, is building a residential-construction combine in the Tura Association with a capacity of 500,000 square meters a year. In 1987, this combine should begin the output of comfortable residential town designs. In this manner, it will be possible to almost double the rate of residential, school and polyclinic construction, and triple that of pre-school institutions and hospitals. The basic elimination of settlements of railcar-houses and ties in the cities and towns of West Siberia is projected over the course of two years.

The strategy for the assimilation of the Yamburg Gas Field and the gas field on the Yamal Peninsula has been reviewed and radically altered. It was decided not to build residential towns for the continuous inhabitation of families in these harsh climatic regions. The assimilation of the gas fields in the Far North will be conducted with the application of the expeditionary-shift mode of operations. Comfortable shift-work towns will be created on the site for the expeditionary personnel of the fields and the drilling and construction workers.

Novyy Urengoy has been adopted as the base city for the assimilation of the Yamburg Field, along with the city of Labytnangi for the fields on the Yamal Peninsula. The families of the shift workers will also live in the cities of Nadym, Tyumen and a number of cities of the central regions of the country and the Ukraine. The city of Novyy Urengoy will be developed at an even faster rate. Leningrad construction workers will play a large part in the development of Novyy Urengoy. Over the five-year plan, they will construct and place in service 360,000 square meters of housing. Construction organizations of the Moldavian and Armenian SSRs will construct residential housing with a total area of 190,000 square meters.

The rate of residential construction in Nadym will be considerably expanded. Much work will have to be done there on the construction of engineering service facilities.

The planning institutes of Gosgrazhdanstroy have undertaken the planning of buildings for trade, public catering, social services, culture and sports using light metal designs. The full supply of these facilities by the enterprises of USSR Minmontazhspestroy [Ministry of Installation and Special Construction Work] will make it possible to fill in rapidly the gaps in the integrated construction of the cities and towns of West Siberia.

The Fuller Satisfaction of the Needs of the Gas Workers

The development and realization of specific measures for improving trade and more fully satisfying the demands of the laborers of the West Siberian Gas Complex for food products and industrial goods was resolved by the collectives of the Glavurs [Workers' Supply Main Administration] of Mingazprom and the Urs [Workers' Supply Administration] of Glavtyumengazprom, which concluded the last five-year plan with good results.

The early fulfillment of the retail sales plan for the 11th Five-Year Plan was ensured.

The average annual rate of sales growth was 18.5 percent. The retail sales plan was overfulfilled, including in the areas of trade, public catering and the sale of individually produced products.

The RSFSR Ministry of Trade, as well as a number of departments, is actively participating in the work on improving the workers' supply for the gas workers of West Siberia. If the demand of the gas workers for animal-husbandry products and fur clothing and boots is taken into account, however, then it is still not fully satisfied. There are still many shortcomings in the organization of service in the localities. The rate of development of the material and technical base in the regions of the Far North lags the growth rate in sales and number of service contingents. There are thus too few stores (49 percent), cafeterias (78 percent), warehouses (70 percent) and vegetable storehouses (88 percent).

For the execution of the CPSU Central Committee and USSR Council of Ministers decree on "The Integrated Development of the Oil and Gas Industry of West

Siberia," a plan has been worked out for the development of the material and technical base of trade and Glavtyumengazprom in the current five-year plan. The amount of capital construction allocated for these purposes will increase by 24.2 percent in accordance with it.

Projected are the introduction of stores with an area of 17,800 square meters, warehouses with 80,000 square meters, vegetable storehouses with 25,000 tons of capacity, refrigerators with a capacity of 6,000 tons, and cafeterias with 9,500 seats, which will considerably exceed the capacity introduced in the last five-year plan. The implementation of this program will make it possible to approximate closely the established standards. Measures will be implemented at the same time for the further improvement of the organization of trade, the incorporation of progressive service methods, the further industrialization of public catering and the integrated rationalization of trade.

Everything is not going smoothly, however, in the trade service for the West Siberian gas workers. There are also shortcomings that Mingazprom is unable to eliminate on its own. Ministries and departments that produce consumer goods, for example, ship them to the Far North in inadequate packaging.

The complex technical production of a number of sectors is not of high quality. The proportion of non-prepackaged goods produced by USSR Minpishcheprom [Ministry of the Food Industry] is too great.

Much assistance to the industry in organizing effective concern for the gas workers of the region could be rendered by: the Ministry of Civil Aviation, by creating an air bridge for the transportation of fresh vegetables, berries and fruits; USSR Mintorg [Ministry of Trade], by ensuring the supply of announced trade and technical equipment for cafeterias; and, the RSFSR Ministry of Consumer Services, by arranging the repair of complex consumer equipment and radio apparatus in Igrim, Belyy Yar and Komsomolskiy. These and many other issues in improving the social conditions of the life of the gas workers and their families occupy the center of attention of the ministry's workers' supply administration, which is taking the necessary measures and making demands of related industries so that the assigned task of providing a reliable productive rear echelon for the gas workers is met fully and urgently.

The Equipment of the North Requires High Reliability

In accordance with the critical remarks of CPSU Central Committee General Secretary Comrade M. S. Gorbachev that he expressed on a visit to the West Siberian Oil and Gas Complex, questions for strengthening the links between machine builders and gas industry enterprises were reviewed at a conference in Surgut, along with questions of raising the technical level and reliability of the equipment supplied and improving its operation. The conference noted that the technical level and volume of production of gas transmission equipment that has been achieved, along with that of spare parts and tools, does not fully satisfy the needs of the gas industry. Questions of modernizing equipment, removing obsolete equipment from production and assimilating new types of equipment are being resolved too slowly. Guided by the decrees

adopted by the party and the government for the rapid development of the West Siberian Oil and Gas Complex, and in the interests of ensuring a technical re-equipping as well as an increase in the level of operation of equipment supplied, the following areas of activity are projected as fundamental:

raising the technical level of drilling and gas production and transmission equipment and the creation of a new generation of equipment;

the organization of technical repair service for the principal types of equipment by the producer plants;

the implementation of monitoring of the production and acceptance of basic gas production and transmission equipment.

In accordance with the plans approved, Mingazprom has detailed, in conjunction with the machine-building enterprises, operations in the area of increasing the technical level and reliability of process equipment. Measures were approved at a joint collegium with Minenergomash [Ministry of Power Machine Building] and Minpribor for increasing the reliability of GTN-16 and GTN-25 gas-pumping units, including the supplying of parts and assemblies for modernizing operating machinery with the aim of raising its economy.

Questions of service repair and maintenance of assemblies by the manpower of supplier plants, as well as the acceptance of these assemblies at producer plants, were resolved in a positive fashion. The procedure for supplying Minenergomash with modular-kit compressor stations was determined, along with the procedure for joint work in creating new highly efficient energy-conserving gas-pumping assemblies in the 12th Five-Year Plan. Programs were formulated and approved by Mingazprom in conjunction with Minkhimmash [Ministry of Chemical and Petroleum Machine Building], Mintyazhmash [Ministry of Heavy and Transport Machine Building] and Minoboronprom [Ministry of the Defense Industry] in the area of creating drilling equipment. They envisage the creation of drilling rigs by kit in panel shelter framework form with a heating system and heat separation by powerful pump and derrick units.

The series production of the "Sibir" BU-2500 EDK drilling rig, with a capacity of 160 tons according to GOST [All-Union State Standard] 16293-82 with thyristor drive, will be assimilated for cluster drilling of oil and gas wells in West Siberia.

The output of triplex mud pumps with increased hydraulic capacity and of circulation systems with three degrees of cleaning that are more reliable and productive, executed on a high technical level, is proposed beginning in 1987-88. It is projected that modernization will increase the service life of the swivels and replacement parts of the hydraulic section of mud pumps. The replacement of obsolete equipment and tools, for example the Uralmash-UE-76, and ZD-76, BU-75, BrE, BrD and BU-30005D drilling rigs, is envisaged in the current five-year plan.

The principal supplier of the new equipment and tools is the Ministry of Chemical and Petroleum Machine Building. Its product line includes apparatus

for the preparation, cleaning, transportation and storage of cleaning fluids, equipment for wellhead sealing in drilling, tools for the mechanization of roundtrip operations, and lifting mechanisms for the installation and transportation of drilling equipment and equipment for well cementing.

The beginning of series production of power tongs for KMO 168-508 casing pipes is planned for 1989 along with stationary automated tongs with AKBU-E electric drive in 1987, and the equipping of rig-building crews with special KM-40 installation cranes in a unit with the uniaxial BelAZ-351 tractor is planned over the course of the five-year plan.

A special place is reserved for the creation and manufacture of equipment (anti-blowout equipment, well equipment and others) for operations in hydrogen sulfide and carbon dioxide environments.

A program developed in conjunction with Minelektrotekhprom [Ministry of the Electrical Equipment Industry] envisages the modernization of existing, and the creation of new, modular-kit electrical equipment. The creation of new types of electric drive with ratings of 6, 12.5 and 25 megawatts with frequency-controlled rotation is projected along with self-contained switchgear, diesel-electric stations, and cable, including for maritime use. The creation of new, and the modernization of existing, electrical equipment is projected for northern conditions. Questions of electrical-equipment service repair and maintenance in the West Siberian, Urals and Volga areas are being resolved.

In conjunction with Minneftegazstroy and Minkhimmash, measures have been developed for expanding the sphere of application of modular-kit apparatus and rigs in the construction of gas-industry facilities. They specify the composition of the industry modular-unit kits for rigs and compressor stations subject to Minkhimmash supply, coordinate the amounts of modular-unit apparatus and bay-units production, and confirm the types of equipment for the installation of pontoon units for support structures in the Yamburg Field.

A plan was approved in conjunction with USSR Minchermet [Ministry of Ferrous Metallurgy] and Minneftegazstroy for organizational measures to increase the operational reliability of pipe for gas trunk pipelines as well as oil-grade pipe for gas industry support construction.

The broad-scale incorporation into practice of repair and maintenance service for gas-pumping units, automation systems, fittings, refrigeration units and other equipment with the aid and direct participation of the manufacturers of that equipment will become a fundamentally new form of intersector cooperation. It is natural that the plant specialists develop the necessary repair processes, prepare tool and spare-parts kits, and organize the repair service using the repair bases under construction and already existing in Novyy Urengoy, Belyy Yar, Komsomolskiy, Kranoturinsk, Chaykovskiy and others. The necessary warehouse stocks of spare parts and equipment assemblies will also be created, and the spare-parts replenishment system of these bases from the producer plants will be improved. The final aim of this maintenance system is a sharp increase in the quality of repairs and a reduction of the execution times of necessary equipment modernization and preparation.

The implementation of monitoring of the production and acceptance of basic gas production and transmission equipment has the aim of considerably increasing the reliability of manufactured equipment. This can be achieved by the organization of a system for monitoring the quality of manufacture at producer plant that is implemented by representatives of USSR Gosstandart [State Committee for Standards] at Mingazprom. They check the observance of process operations, the state of process equipment and tools and the conditions of production, that is, all of the components upon which the quality of the manufactured article depend. It is possible to name a number of enterprises at which the introduction of equipment acceptance is proposed: the Nevskiy Plant imeni V. I. Lenin, the Khabarovsk Dalenergomash Plant, the Turbomotor Plant imeni K. Ye. Voroshilov, the Dvigatel Revolutsii Plant and others. The overall aggregate of the areas of work with the machine-builders in the 12th Five-Year Plan indicated above will make possible an ascent to a qualitatively new level of equipment manufacture for the gas industry and an improvement of its technical and economic parameters.

Reserves in Capital Construction

The formation of the West Siberian Oil and Gas Complex presupposes very large capital investments both in the sphere of productive construction and in the creation of a developed infrastructure. This must be taken into account in the timely development of economical solutions for the supporting construction of the northern fields. Comrade M. S. Gorbachev, analyzing the state of affairs in capital construction, noted that it is restrained by the resolution of many questions, and when new tasks arise in the development of the oil and gas complex, they must be resolved in a slapdash fashion and lead to major additional expenditures.

The state of the construction of the facilities in West Siberia that determine the production of gas and gas condensate in the country provoke serious concern. This regards first and foremost the non-fulfillment of the condensate production plan. The main cause of the allowed disruption was a delay in the construction of gas-condensate complex facilities (well hook-up and the construction of connecting lines and installations for the production and preparation of condensate for transmission).

Following the recommendations of M. S. Gorbachev, Mingazprom, in conjunction with Minneftegazstroy, Mintransstroy [Ministry of Transport Construction] and USSR Minenergo, has developed and approved detailed schedules for fulfilling construction and installation work with an indication of the specific times and executors for each element of the complexes of the Urengoy and Yamburg fields.

The measures project an acceleration of the entry into service of UKPG-5V, UKPG-12 and UKPG-13 at the Urengoy Field and the construction of 93.5 kilometers of gas-gathering mains and connecting lines to well clusters along with 60 kilometers of hard-surfaced motor-vehicle roads and substations for operative rigs.

At the Yamburg Field, construction capacity is being concentrated on the building of a temporary water intake and channelized treating facilities.

The fulfillment of the plan targets for the first year of the five-year plan requires a sharp acceleration of the rate of capital construction, especially at the Yamburg Field. Its support construction should be conducted on a high scientific and technical level with the broad-scale incorporation of energy- and materials-conserving collection technology and gas and gas-condensate treatment, a raising of the level of construction industrialization based on the creation of modular-kit rigs of increased plant prefabrication of up to 400 tons, the incorporation of labor-saving forms and methods of expeditionary-shift organization of labor in the construction and operation of industry facilities, and the creation of fully automated facilities that operate without the continuous presence of service personnel.

Economic Reserves of the Region

The development of fuel and energy supply systems under the conditions of the West Siberian region are oriented toward the utilization of exclusively local resources. The possibility using motor fuel obtained from local hydrocarbons has already been proven by the practice of ever deeper industry refining of Urengoy condensate. In this regard, the ministry has prepared, with the participation of scientific research and planning organizations, a program for expanding and deepening the integrated refining of the gas and condensate of the fields of West Siberia.

It is projected that a considerable saving will be obtained from the use of low-pressure gas as a fuel for local heat-and-power supply plants in the region.

Among other major resource-conserving measures, the ministry sees the necessity of reviewing the norms and standards system for metal, reagent, fuel and energy consumption, equipment maintenance, equipment operating rules, fire safety and other standard documents taking into account the achievements of scientific and technical progress.

The realization of the program of standards transformation over the course of the current five-year plan assumes a reduction of no less than 8% in the consumption of the principal types of resources.

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GENERAL

INFRASTRUCTURE DEVELOPMENT IN TIMANO-PECHORSK PRODUCTION COMPLEX

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 19 Jan 86 pp 1,2

[Article by SOTSIALISTICHESKAYA INDUSTRIYA special correspondents N. Goncharov and V. Krukovskiy, Naryan-Mar: "Discussing the Draft of the Fundamental Areas of Economic and Social Development: The Call of Northern Oil--The Mailbox of SOTSIALISTICHESKAYA INDUSTRIYA in Naryan-Mar"; passages rendered in all capital letters are boldface in original]

[Text] The Nenetsk land stretches for almost a thousand kilometers from west to east along the polar sea. Nothing disturbs the level run of the tundra, like the flood water at spring thaw. Only in the very center, the full and powerful Pechora River divides it into two equal parts. Far to the east, the stone shield of the Polar Urals rises in its path. Polar night hangs over the tundra, and the lights of the okrug administrative center--the city of Naryan-Mar--shine with a broad glow.

Drilling rigs have risen ever more densely in recent years on the snowy boundlessness of the tundra. One and a half billion rubles were invested in exploration for oil, gas and other mineral wealth in the 11th Five-Year Plan alone, and almost double that amount is planned for these purposes in the 12th. The economic prospects of the kray were also reflected in the draft of the Basic Directions of Economic and Social Development of the USSR in the Years 1986-90 and for the Period to the Year 2000. The task is posed of accelerating geological exploratory work here so as to continue the development of the petroleum industry of the European North on the basis of the Timano-Pechorsk Production Complex under development.

It is not surprising that these problems were the theme of all the questions for ministries and departments arriving at our mailbox in Naryan-Mar. In order to answer them, a meeting with laborers was attended by RSFSR Ministry of Geology Deputy Minister V. Mazur, Geological Administration Chief and Mingazprom [Ministry of the Gas Industry] Collegium member I. Zhabrev, Deputy Chief G. Vashchayev of this administration, Komigazprom [Komi Gas Industry] Association Chief Engineer V. Podyuk, Minnefteprom [Ministry of the Petroleum Industry] Oil Production Department Chief Yu. Ageyev, Komineft [Komi Petroleum] Association Chief Engineer N. Kalimullin, Ministry of Civil Aviation Capital Construction Administration Deputy Chief N. Zakharov, Chief of the Arkhangelsk Administration of Civil Aviation Yu. Yurkin, Minmorflot [Ministry of the Maritime Fleet] Collegium member V. Aristarkhov, RSFSR

Mintorg [Ministry of Trade] Glavsevtorg [Northern Trade Main Administration] Deputy Chief A. Sinyakov, Rospotrebsoyuz [RSFSR Union of Consumers Societies] Rosglavsevtorg [RSFSR Northern Trade Main Administration] Deputy Administration Chief V. Kaygorodova, Arkhangelsk Oblast Ispolkom Deputy Chairman Ye. Divakova, Komienergo [Komi Power] Administration Deputy Chief A. Chuprov, Pechora River Shipping Company Chief Engineer A. Vlasov and others.

Why go into the Tundra?

The discussion, which broke out immediately at the meeting, actually began a little earlier. At the fourth session of the USSR Supreme Soviet, Arkhangelsk Party Obkom First Secretary P. Telepnev called upon the interested ministries to resolve more actively the tasks of exploiting the oil and gas resources of the region. As if continuing this line of thought, Nenetsk Okrug Party Committee First Secretary Yu. Romanov stated in opening the meeting that "fifteen oil fields and more than ten gas fields have been found on the territory of the okrug. All of this, as emphasized in the draft of the Basic Directions, makes it possible to continue the development of the petroleum industry in the European North portion of the country. But the European North is quite a broad concept. Therefore, in the Fuel and Energy Complex Subdivision, where the petroleum industry is discussed, it is necessary to enter specifically: 'TO BEGIN THE INDUSTRIAL DEVELOPMENT OF THE OIL FIELDS OF THE NENETSK AUTONOMOUS OKRUG.'"

RSFSR Ministry of Geology Deputy Minister V. Mazur supported this proposal, recalling that the okrug has half of all the discovered petroleum resources and three quarters of the gas reserves of the Timano-Pechorsk Territorial Production Complex. Three oil regions have been discovered and evaluated here, and the annual gas production here can already be planned at 15-20 billion cubic meters. The amount of exploration will double in the current five-year plan. There will be new discoveries. What is more, the geologists have just barely approached the distant horizons.

Everyone awaited the words of the representatives of Minnefteprom and Mingazprom with interest. But they did not fully share the enthusiasm of the trailblazers. Yu. Ageyev, in answering the questions of the northerners, constantly contradicted himself. On the one hand, in his words, Minnefteprom has long prepared for production in the tundra, is creating a base at Kharyaga, and is making landings at other fields, since "life itself compels us": production is falling at the Komienergo Association. But, on the other hand, the ministry is clearly not hurrying. The explanation is simple: "it is a difficult area..."

[Written question from the audience] "Doesn't it seem to you that Minnefteprom is overdoing it with regard to the complexity of assimilating the fields of the okrug? We geologists have worked here for twenty years and do not see these difficulties. You take a double safety factor, and that is why the plans are so expensive. You must come here and assimilate more boldly, but your industry science, without having once seen our permafrost, is too cautious!"

[Yu. Ageyev] "I consider this statement of Arkhangelneftegazgeologiya [Arkhangel'sk Oil and Gas Geology] Association General Director Yu. Rossikhin to be rash. We studied your permafrost, and we know a thing or two. And your oil isn't gold. It congeals to a too-viscous state, even at high favorable temperatures..."

[Voice from the audience] "At one field!"

[Yu. Ageyev] "No, at all of them..."

[Voice from the floor] "You don't know!"

[Yu. Ageyev] "We will not put the cart before the horse! We must be guided by scientific data. First study the conditions, and then go on..."

[Voice from the audience] "Tell us specifically, when?"

[Yu. Ageyev] "We are thinking of assimilating only the Kharyaga field in the okrug by the end of the five-year plan, and producing 200,000 tons of oil there by the end of 1990."

This response provoked laughter in the room. Then Kombineft Chief Engineer N. Kalimullin rushed to the aid of his colleague. He began to speak of intentions to create, in such a difficult region, bases not near or next to fields, but right on them, as is already being done at Kharyaga. But he was immediately asked: "Do you share fully the point of view of Ageyev?"

[N. Kalimullin] "I could say the same thing. I only want to elaborate that all further prospects for development in the Kombineft Association are connected with the assimilation of the fields of the Nenets Autonomous Okrug. And, as serious as the problems here are, we will solve them. But we will not solve them hurriedly, and we will not repeat the mistakes of the past. We should proceed here in a calculated and well-founded manner."

I. Zhabrev left no doubt about the position of Mingazprom: even though Komigazprom is already actually conducting the development of the Vasilkovskoye field, the principal output in the Nenets Okrug is only projected for the 13th Five-Year Plan.

[Note from the audience] "In your speech, you are quite pessimistic in your evaluation of the possibility of assimilating the gas fields of the okrug. But unfortunately, that is from a departmental point of view. Why do you not have a common technical and economic grounding with the petroleum industry workers? After all, a common infrastructure can and should be planned here which would sharply diminish the proportionate expenditures. And, after all, this hinders the assimilation of oil as well."

[I. Zhabrev] "I do not quite understand how we hinder the assimilation of Nenets oil. If we are talking about condensate feed to Kharyaga, so as to improve the transportation properties of the oil there, then this issue was first placed before our ministry just last October. What's more, only

discussions have taken place so far. We have no official data on how much gas and how much condensate the oil workers need.

"Our institutes are now preparing a detailed answer to the question of the joint assimilation of the oil and gas fields of the region. We do not regard this pessimistically. But we will only arrive here with great manpower in the next five-year plan."

Avoiding Old Mistakes

What mistakes are we talking about? First and foremost, that frequently the assimilation of new regions begins without serious preparation of the productive and social base. This leads to many losses. Assimilation times are dragged out and enormous quantities of raw materials and resources are wasted. It is therefore not by accident that so many questions arrived in our mailbox on this theme from the northerners. They expressed alarm that everyone agrees on this in word, but in deed the opposite results. Mingazprom recently eliminated the construction administration that had been created in Naryan-Mar, and left there only a small section. The oil workers had barely begun to deploy. Due to this, the transportation workers--sailors, aviators, river workers--did not clear up their positions. There is absolutely no clarity on how the problems of creating a base for the construction industry and water supply will be resolved. V. Mazur also avoided these questions, even though the participants in the discussion posed them persistently.

Minmorflot Collegium member V. Aristarkhov spoke of the lack of coordination in the activities of the principal related transport ministries.

[Aristarkhov] "We feel that the fleet is in condition to supply mass cargo to the geologists and oil and gas workers. The related ministries, however, have not presented estimates of what will have to be shipped where. And after all, we should be prepared for that ahead of time. Apparently, a special fleet will also be needed that includes air-cushion vessels and special barges that can go out onto the shore. All of this will have to be studied by our specialists. But when? It is true that we are not sitting with our arms folded. This year we will begin the reconstruction of two berths in the Port of Naryan-Mar, and in the future we will set about renovating the others."

[V. Mazur] "We have developed a plan for the delivery of cargo by sea in conjunction with Minmorflot. But we are troubled greatly by it: the sailors are not developing a tanker and icebreaker fleet here. We literally take the delivery plan by force every year. The aviators also owe the geologists: only 8,700 helicopter hours are planned for us, but we need 11,000.

Yes, everything here still depends on the aviators. They labor selflessly, flying continuously to the most remote corners of the tundra. And all the same, it was difficult to bring the Ministry of Civil Aviation representatives--N. Zakharov and Yu. Yukin--to the meeting. There were many questions, no fewer than have been heard in the course of the meeting itself.

[Yu. Yurkin] "We really do not provide for every last bit of the ever-growing demand for aviation shipping. The poor condition of our ground technical

operations does not permit us to do so. It is true that the Naryan-Mar aviators recently got a new runway and a minimum of necessary structures. But this will not solve all of the problems.

"We will introduce new aircraft in the near future. The ministry has promised that the northerners will be among the first allocated powerful Mi-26 helicopters. But I want to emphasize with all clarity that without the assistance of the interested ministries, we will be unable to resolve the task. Unfortunately, the word 'interested' frequently has to be put in quotation marks. USSR Minister of Geology Ye. Kozlovskiy didn't even answer questions about the partial participation of geologists in the creation and development of an airfield in the okrug. And we are, after all, basically working on that area today.

"The aviators and geologists could be well assisted by the river workers. But they are poorly assimilating the small rivers. As acknowledged by A. Vlasov, the sector still does not have vessels that can pass along them. The shipping company itself is also insufficiently concerned with this. But the delivery of cargo on small rivers is growing sharply in the current five-year plan: by 43 percent in the oil and gas regions."

Serious questions were also addressed to the USSR Minenergo [Ministry of Power and Electrification]. In answering them, A. Chuprov stated that the ministry has requested an administration to be the buyer of all industrial power in the okrug.

[Reply from the audience] "Requested or instructed?"

[A. Chuprov] "Requested and instructed. The construction of an LEP [Electrical Transmission Line] in the principal oil and gas regions of the okrug is planned. But everything will depend on how our principal clients--the oil and gas workers--allocate resources."

Man in the Polar Regions

This problem was emphasized as never before by A. Malyshev, the board chairman of the Oblast Fishing Industry Union of Consumers Societies:

[Malyshev] "Much has been said here in detail about tons of oil and cubic meters of gas, but no one has even hinted at how to feed men in polar conditions."

The representatives of the ministries and departments really regarded this topic, difficult in the conditions of the North, as pater, and preferred to minimize the fulfillment of the plans of social development in the complex altogether. And this is no accident: this area has many keen issues, even though much is being done. A. Malyshev, V. Kaygorodova, Ye. Divakova and others presented convincing facts and figures that confirmed this. The trade of popular goods has been improved somewhat lately. But, as before, few fruits and vegetables are delivered here. The output of food products in special waterproof packaging for geologists, fishermen, hunters and deer-herders has not been mastered.

A particular issue is warm clothing. Funds for it are being increased by almost one fourth in the current year. But the situation with wool and fur products is simply bad. The matter could be corrected by increasing the output of warm clothing made from artificial fur. But it must really be warm! Special versions of it are also needed. Unfortunately, these needs of the northerners are not taken into account by the USSR Minlegprom [Ministry of Light Industry]. In spite of the fact that new stores have appeared in the okrug, the material base of trade is far from the necessary level: the enterprises here that operate in these sectors assist poorly. The meeting participants reasonably posed the question of supplying this region from the funds of the Far North.

There were many complaints regarding shortcomings in the cultural-welfare and transportation services. There is still no direct Naryan-Mar--Moscow route. It is crowded here in the little house that is called an airport. A passenger service building has been planned, it is true, as stated by N. Zakharov, and the participating ministries have been determined. But the RSFSR Ministry of Geology and Mingazprom are not rushing to take on their share of the work. It was mentioned at the meeting that many departments also do not display activeness in the creation of the cultural material base. In the geologists' town of Iskatel, for instance, the club huddles together in wretchedly contrived quarters, even though more than one thousand people live there...

Some questions were able to be resolved in the course of preparing the meeting.

"Our workers," said Pechorsk Fish Combine Smoke Shop Team Leader S. Osipova in her presentation, "also appealed through the newspaper's mailbox to the USSR Minrybkhhoz [Ministry of the Fish Industry]. We have already been told that the construction of six 12-unit apartment buildings is planned for the combine. Additional motor vehicles and all-terrain transport for assimilating lakes and hauling fish have been allocated. I have one question that we didn't ask, but we request that it be resolved. We lose thousands of tons of fish due to a shortage of refrigeration at shore points, and we limit its receipt from fishing artels. In the interests of the people--both we northerners and those who expect fish from us--help us in this matter."

* * *

The conversation at the newspaper's mailbox was substantive, sometimes sharp and impartial. Unfortunately, people did not receive exhaustive answers to all questions. And no one at all was at the meeting from Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises]. Glavkomigazneftestroy [Komi Oil and Gas Construction Main Administration] Chief V. Miroshnichenko was charged with appearing at the meeting, he passed the obligation along to Chief Engineer A. Vanin, and in the end no one came.

The meeting revealed the inconsistency of Minnefteprom and its institutes, especially VNIInefti [All-Union Scientific Research Institute of Petroleum], in their approach to the assimilation of the region. Scientists headed by

Deputy Director Doctor of Technical Sciences M. Surguchev are trying to prove that the assimilation of Kharyaga will not have an economic effect. At the same time, another commission of representatives of the same institute and VNIKTEP [probably All-Union Scientific Research Institute for Complex Fuel Energy Problems] are fighting for the most rapid possible arrival of petroleum workers to these areas. And the ministry itself at first allocated Glavkomigazneftestroy a total of 60 million rubles for this area for the five-year plan. And now an additional protocol has recently appeared where another 170 million rubles are added, still not accepted by the builders. It is evident that all plan developments and the considerations which also bear the stamp of this duplicity require most careful analysis. It is worth citing a single instance: a kilometer of concrete road in the new region, according to the estimates of PechorNIPInefti [Pechorsk Scientific Research and Planning Bureau of Petroleum], costs 819,000 rubles, but according to the rough calculation of the ministry itself--six million rubles.

It was mentioned at the meeting, not without purpose, that the manipulation of contradictory numbers is not the best method of establishing the truth, not to mention constructing serious plans based on them.

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GENERAL

TRAINING YOUNG WORKERS FOR WORK IN TYUMEN OIL, GAS COMPLEX

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 86 p 7

[Article by engineer A. Panin, Tyumen--Moscow: "Personnel for the Oil and Gas Complex of Siberia"]

[Text] Qualitatively new tasks, unprecedented in scope and complexity, will have to be resolved in Siberia in the 12th Five-Year Plan. Particular attention, as stipulated by the draft of the Fundamental Areas, should be devoted to the further development of the West Siberian oil and gas complex. The labor collectives of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] will be occupied with the realization of tasks that exceed the previous ones by 1.6 times. More than half of all operations will take place in polar regions.

Ministry organizations have increased the amount of construction in this region at a rapid rate in the last five years. Seven main construction administrations and 64 trusts were created here. Even today, substantive qualitative changes are taking place along with quantitative ones in the complement of the work personnel: their qualification level is being raised along with the proportion of workers in specialized secondary and technical secondary education.

More than 45,000 apartments were built for the laborers in Siberia over the five-year plan, along with kindergartens, schools and hospitals. The supplying of the population is improving, although all of these problems are still far from resolved.

The increase in the construction program in the new five-year plan is so large that it is impossible to implement it by raising labor productivity alone without an increase in the number of workers. More than 7,000 people arrived here in 1985, including the Stakhanovets and imeni 40th Anniversary of Victory Komsomol detachments. But this is still insufficient.

In 1986, the West Siberian construction sites will be supplemented by another 30,000 people. Their reception is already being prepared: housing and dormitories are being erected. New field towns are rising near the major facilities and the routes of oil and gas pipelines under construction. The housing construction capacity that has been created makes it possible to erect 2.2 times more housing in the 12th Five-Year Plan than in the 11th. The

task has been posed of transferring all industry workers living in temporary housing into apartments with all modern conveniences. The developing infrastructure of oil and gas construction ensures ever higher standards of social and welfare services for the field workers.

Scientific and technical progress spurs the improvement of the work personnel training system. The ministry envisages the creation and technical equipping of a network of special educational centers that will conduct the preliminary selection of new replacements and training and probationary periods. The raising of the qualifications of mechanics right at the facilities has been organized. Classes are conducted by mobile groups of instructors and skilled workmen from the ministry technical schools. A total of 11,500 operators of excavators, pipe-laying cranes and bulldozers were trained under field conditions, including more than 9,000 people for West Siberian subunits. This proven method will be further developed in the new five-year plan.

Under conditions of an unprecedented scope of construction when ever more powerful modern equipment arrives at construction sites along with various heavy vehicles and machinery, the problem of preserving the environment becomes especially acute. The construction workers always were and will remain trailblazers for many years, and they are some of the first to enter into immediate contact with nature, which is often fragile and vulnerable. And the fate of the surrounding environment depends greatly on who drives the vehicles that operate on the new construction sites and whose foot treads on the worksite and the new pipeline routes. It is apparent that the time has come in the preparation and training of the work personnel in the construction professions to conduct a course of study on protecting the environment, in part by the observance of nature-protecting measures in conducting construction and installation work.

The organizations of Minneftegazstroy have, for the first time in national practice, laid the groundwork for the technical resolution of the planning, construction and operation of a new type of residential complex--route villages and field towns of construction workers. Their disposition in the "corridor" of the trunk gas-pipeline systems to a certain extent ensured the rapid rates of their construction, since it made it possible to create the basis of a modern mobile social infrastructure. It became possible to ensure, in harsh conditions, a high level of living and welfare conditions and the conduct of social and political functions and ideological work along with the organization of cultural leisure time and year-round physical-fitness and sports pursuits.

Tutoring plays a large role in the formation of the young workers, and they are the basis of the replacements. More than three thousand tutors are currently counted among the construction subunits of Minneftegazstroy. As a rule, these are the workers with the best reputations, who possess great experience in life, labor tempering and pedagogical skills who have a careful, affectionate and, at the same time, exacting attitude toward the young replacement workers.

The very life of such a tutor as communist N. Nezhdanov--team leader of the Komsomol Youth Construction Administration No 24 of the Megiongazstroy [Megion

Gas Construction] Trust of Glavtyumenneftegazstroy [Tyumen Oil and Gas Construction Main Administration]--can serve as an example for the young people. A Hero of Socialist Labor, deputy to the RSFSR Supreme Soviet and member of the Nizhnevartovsk CPSU Gorkom Buro, he has worked at northern construction sites for more than 13 years. In 1985, six pupils of N. Nezhdanov became link leaders. All 100 members of his team are systematically raising their knowledge.

M. Buyanov, installation team leader of the leading Mechanized Column No 13 of the Sibkomplektmontazh [Siberian Completion and Installation] Association, Yu. Gotsin, team leader of an integrated team of the specialized Komsomol Youth Severgazstroy [Northern Gas Construction] Trust of Glavyamburgneftegazstroy [Yamburg Oil and Gas Construction Main Administration] and many other worker-mentors have skillfully mastered the art of labor and civil education.

The successful resolution of production tasks is directly dependent upon the level of concern and attention toward personnel, and young workers in particular, of whom there are approximately 50,000 working in ministry organizations in West Siberia. Most effective in this matter is the experience in creating Komsomol youth collectives, teams, sections, administrations and trusts. Healthy production attitudes develop more rapidly and a favorable psychological climate is formed in places where youth detachments become independent entities.

Five Komsomol youth trusts, 27 Komsomol youth construction and specialized teams and administrations and 220 teams have been created in the most important construction sections of West Siberia. As a rule, these collectives have high production indicators. This form of work with youth merits study, improvement and support, and is most promising in the cause of consolidating the youth.

The attitude toward people and concern for them acquires exceptionally great significance in the harsh natural and climatic conditions of West Siberia. Instances where residential housing turns out to be incomplete, work fronts are presented in an untimely fashion, necessary tools are lacking etc. are totally impermissible. That has happened in the Urengoygazstroy [Urengoy Gas Construction] and Surgutspetszhilstroy [Surgut Specialized Housing Construction] trusts.

Minneftegazstroy provides for the preferential supply of provisions and finished goods for construction workers in the departmental organizations of Tyumen Oblast. More than two thirds of the product resources allocated to the ministry are directed to this oblast. The sale of meat and dairy products has grown, and the sale of consumer welfare goods--televisions, radios, furniture and automobiles--has particularly increased.

The ministry, however, is still insufficiently active in developing and increasing the network of stores, cafeterias, storehouses, warehouses and refrigerators for the storage of goods and products, especially potatoes, fruits and vegetables.

Receiving points for preliminary product orders must be organized more quickly in industrial enterprises of the ministry in Tyumen Oblast, along with shops for pre-packing in the cities of Nizhnevartovsk, Novyy Urengoy and Surgut. The creation of enterprises for the output of semimanufactures and confectionery products is planned for 1986-87 in Tyumen, Surgut, Nadym and the towns of Beloyarskiy and Komsomolskiy.

The set of measures for training work personnel, consolidating them into construction and creating the necessary production and living conditions and a favorable psychological climate is made possible to a significant extent by the intensification of production. The ratio of the growth in construction and installation work to the number of construction workers testifies to this. Thus, the amount of work conducted in 1985 increased by 2.4 times compared to 1972, while the number of construction workers increased by a total of 42 percent. This most important area of industry activity should be further developed in the 12th Five-Year Plan.

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GENERAL

TYUMEN OIL WORKERS COMPLAIN REGARDING TRADE FACILITIES

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[Article by Economist N. Divlicharova, Candidate of Economic Sciences M. Konotopov and PRAVDA special correspondent V. Brovkin, Tyumen Oblast: "Tyumen Contrasts: Industry--Trade--Purchaser"]

[Text] Orders by the trade enterprises of the oil- and gas-producing regions of Tyumen are resolved first and fully. And there would seem to be no refusals. Nonetheless, to the poll question "What would you ask your friend to bring back from a trip to Moscow?" the residents of Tyumen Oblast name just about the whole range of products of the garment industry. In this answer is an evaluation of the work of trade that is clearly unsatisfactory. Research conducted by VNIKS [All-Union Scientific Research Institute of the Study of Consumer Products Demand and the Trade Market] showed that this opinion is held by every third resident of the oil- and gas-producing region.

What are the principal causes that provoke the serious dissatisfaction? It was expressed frankly in our discussions with the trailblazers of this harsh region--the oil, gas and construction workers. Their labor, day-to-day life and spiritual disposition are greatly dependent on how well trade is conducted, they emphasized. That is why it is so important to demonstrate concern for the laborers in this sphere of service.

The general indicators would not provoke any particular alarm. Over the 11th Five-Year Plan, for example, the sales volume of light-industry products grew by almost one and a half times. The consumption of cultural, welfare and household goods is developing rapidly. The level of supply of refrigerators, washing machines, vacuum cleaners, phonographs and motorcycles to the population already greatly exceeds the average level in the RSFSR. The flow of goods continues to grow. Last year alone, trade in Tyumen received 46 million rubles of additional production. The goods turnover plan was unable to be fulfilled, however, even though it was obviously lower than that required for the satisfaction of the needs of the population.

We note at once that in supplying Tyumen residents with goods, the principle of "bring your sack!" reigns supreme. Gross miscalculations are found in the orders of local trade organizations along with sluggishness in the organization of service. Thus, in many towns are expressed the complaints of

the young: there are no wedding rings. And after all, there is not a shortage. Sometimes the problem is buying a toothbrush or thread.

Various shortages coexist with large and growing surpluses. In the northern regions alone, many millions of rubles of unmarketable and stale goods have piled up.

This is especially intolerable in the conditions here. The point is that warehouses, and if we speak of produce, the storehouses for potatoes and vegetables, are clearly inadequate even in the basic trading system--the workers' supply administrations of Glavtyumenneftegaz [Tyumen Oil and Gas Main Administration], Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] and Glavtyumengeologiya [Tyumen Main Geological Administration]. Many goods and products arriving in the oblast, skipping the bases, are distributed directly to stores and cafeterias. And the typical, so to speak, retail trade or social catering facility is an accommodation fashioned from a residential country home or apartment. Take a look at some store in a box, stuffed to the limit with goods, and think: will it be possible for a customer to find the thing he needs here?

It seems that, to raise sharply the service to customers, Tyumen trade must first of all investigate the retail network and the warehouse set-up and work out a scientifically based strategy for its development. The existing practice of creating small stores with areas of less than 70 square meters is not justified in major towns, much less in cities. After all, Tyumen has been inhabited for centuries, not for a year or two. It is necessary to construct specialized stores and supermarkets. They are still a rarity.

The conception is not yet noticeable in construction that social facilities are no less important than others. Over the 11th Five-Year Plan, capital investments for the development of the material base of trade were only 65 percent assimilated. The five-percent deduction from residential construction is especially poorly utilized. The construction times for many trade facilities exceed the standards by 2-3 times or more. Thus, the Soyuzzapsibenergostroy [All-Union Trust for West Siberian Power Construction] has wasted 12 years on the erection of a warehouse and refrigerator for the Surgutneftegaz [Surgut Oil and Gas] workers' supply administration. It was handed over only recently with much unfinished work that has yet to be eliminated. Overall, only thirty-one Glavtyumenneftegaz trade facilities have been placed in operation out of 111 that were planned for last year by subcontractor organizations of Minneftegazstroy, USSR Minpromstroy [Ministry of Industrial Construction], USSR Minenergo [Ministry of Power and Electrification] and Minnefteprom [Ministry of the Petroleum Industry].

A serious situation has emerged at the enterprises of the food industry. Only two bakeries of 20 planned for the last five-year plan are in operation. Glavtyumenneftegaz did not allocate funds for the construction of bread plants in the cities of Kogalym, Raduzhnyy and Nyagan and the workers' town of Muravlenkovskiy, along with Tyumengazprom [Tyumen Gas Industry Administration] in Labytnangi, Yamburg and Seregin. Many of the existing bakeries are in a dangerous state and are in need of reconstruction. Interruptions in bread supply occur in a number of towns due to the unreliability of their equipment.

The situation is no better in the public catering industry. We cite just one fact: almost half of the dormitories have neither cafeterias nor buffets.

The serious shortcomings in the development of the material base of trade and public catering require the intervention of local party and soviet organs. Only by sharply raising the responsibility of construction organizations for the timely completion of facilities of the social infrastructure and by setting right the retail network can a radical turning point be reached in laborers' services.

It has turned out that trade in Tyumen is conducted by eleven different systems, principally departmental administrations of workers' supply. Sometimes they all operate in the same locality. The residents of Surgut, for example, have nine "nannies." Without coordinating their work, the workers' supply administrations, it turns out, order the same products at the same time, overstocking their stores with them, and then all together at the same time get rid of what is necessary in the product mix and thus create artificially induced shortages for the simplest of articles.

A general plan for trade administration was approved as early as 1982 that stipulated the territorial delineations of the oblast for the spheres of operation for the various workers' supply administrations. It eliminated duplication. The industrial ministries, however, are not rushing to reconstruct the operations of their supply systems. And it is essential that this be done. When goods in Tyumen are given the "green light," it is important to know clearly the needs of purchasers and to administer the flow of products to specific consumers.

Here is what the absence of coordination in studying demand, for example, leads to. The number of specialists occupied with this matter is 10 times less than in the Mintorg [Ministry of Trade] system. And it was precisely the workers' supply administrations, you see, that concentrated 95 percent of the "stockpiles" of unmarketable and stale goods last year.

Practice demonstrates that the maneuvering of goods and the timely transfer of surpluses that have accumulated in one place to where there is a shortage are necessary for the fuller satisfaction of the requirements of the population. A closer coordination of the various trade systems would make it possible to better utilize the warehouse system as well.

The main thing is the necessary operational coordination in work with industry. The demand for goods in Tyumen should be well-founded and reflect the needs of the population.

Sociological research demonstrates that the purchaser here is very diverse. There are many youths, which means great demand for stylish clothing, shoes, cultural-welfare goods and sporting goods. The products should moreover be in a broad assortment and arrive in the necessary lot sizes. After all, all of the girls in a town cannot go about in the same dresses and blouses, and the men in suits of the same color. Such a "uniform" is sometimes forced upon them by trade. Every fifth customer leaves the store without anything new,

and more than a third remain dissatisfied with the purchases. Approximately 70 percent of those polled complained that they could not find goods in season. Shortages in trade, as always, are used to advantage by people pursuing their own interests. Is it possible not to be aroused by the fact that every fifth oil worker is accustomed to buying "hand-me-down" clothing from private persons?

The majority of those who come to work in Tyumen want to settle down in a stable and long-term manner. They badly need domestic equipment, durable furniture and good radios and televisions. How can their interests not be taken into account? By the way, there are those who intend to return to their native areas after working a little. They are few, as research demonstrates--approximately 10 percent. They are fighting for the trade of household goods on commission. It seems that this cannot be discounted from the calculations.

A specific type of customer is the shift worker who comes from other regions for distant drilling. They work for two weeks, as a rule, and then leave for home. Their requests are to expand the travel trade, sell more books, sports equipment, clothing, shoes, food products and souvenirs.

An indispensable rule for Tyumen is the formulation of the trade market with a look to the future. Often the route of a product from the producer enterprise to the store counter stretches to one and a half to two years. Similar conditions and navigation times can displace supply plans.

The facts say that industrial enterprises still use the opportunity to send to distant regions that which did not go over well in the central oblasts. Thus, the expensive and capricious Snezhet phonographs are overstocked in Bryansk Oblast. And last year a large lot of them arrived in Surgut. Half of them were broken, but people were also unwilling to take the ones that worked. The customer in the oilfield regions is no less discriminating than those in the Bryansk region. It must be said that sometimes their own industry lets them down. The new-item output plan at the Tyumen Garment Association was only one-third fulfilled last year, and trade in men's jackets and boy's shirts was halted at this enterprise due to their poor quality.

Improving the selection structure and making it correspond to the needs of the consumer is an important condition for raising the efficiency of all stages of goods turnover from the production of the articles to their sale. A careful hand is needed in this work--an organization with a good reputation that is able to coordinate the work of the trade enterprises of all departments in the region, expeditiously study demand and defend the interests of the consumer before industry. It seems that the matter is up to RSFSR Mintorg. It would be expedient to create a main administration in this ministry for the oil- and gas-producing regions of Tyumen endowed with the appropriate powers. The characteristics of assimilating the region require decisive action.

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